



VIRGINIA WASTE TIRE PROGRAM
UTILIZATION OF
WASTE TIRE SHRED/CHIPS

No. 166

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1. **LANDFILL APPLICATIONS**

Alternative Daily Cover (ADC)

The average size of shredded scrap rubber shall not exceed 40 square inches. The maximum length of any piece shall be 10 inches, and all pieces shall have at least one side wall severed from the face of the tire. For ease of consideration, a nominal size of 4 inches is considered to meet this specification.

The shredded scrap rubber to be utilized in ADC shall be mixed 50/50 with soil prior to application. Each facility shall apply for and receive approval from the Department of Environmental Quality (DEQ) for application of this scrap rubber/soil mix at the site prior to use. Each facility utilizing this ADC mix shall evaluate the control characteristics of the mix on the site (odor, litter, vectors, fire, etc.) For more information on this application, contact John Godfrey, Permitting, DEQ (804-698-4000).

Leachate Collection Systems Design

On a case by case basis, DEQ may authorize the use of tire chips (size matching ADC specifications) in the formation of a buffer area above leachate collection piping and stone aggregate. Tire chips should not come into contact with the piping or with any landfill liner (natural or synthetic). Backfill use of tire chips for piping outside the landfill footprint may also be authorized. For more information on these applications, contact Mike Dieter, Permitting, DEQ (804-698-4000).

Gas Collection Network

On a case by case basis, DEQ may authorize the use of tire chips in the construction of gas collection trenches. For more information on this application, contact Mike Dieter, Permitting, DEQ (804-698-4000).

Road Stabilization, Retaining Walls, and Bank Stabilization

Tire chips may be used as light weight aggregate for the stabilization of internal landfill roads based upon pre-approved criteria provided by the operator. Additionally, the use of waste tires and waste tire material for use in retaining walls or bank stabilization may be approved on a case by case basis. For more information on these applications, contact Mike Dieter, Permitting, DEQ (804-698-4000).

Final Cap Design

Tire chips used in the final capping system of a landfill must not contain any wire which could tear the geomembrane or flexible membrane installed above or below the drainage layer. The tire chips must be of such gradation to allow for installation of geomembrane without tearing. This use of tire chips is evaluated on a case-by-case basis. For more information on this application, contact Mike Dieter,

Permitting, DEQ (804-698-4000).

2. CIVIL ENGINEERING USES

Roads

The Alternative Daily Cover (ADC) specification is also being applied to civil engineering uses such as lightweight fills for embankments (Virginia Department of Transportation - VDOT). An added specification for this use is *that no metal particles shall be placed in the fill that are not firmly attached to a rubber segment*. VDOT or local approval is required for this application.

Residential Septic Systems - Aggregate

The Virginia Department of Health (VDH) and DEQ approved the use of tire chips for use as coarse aggregate in non-proprietary subsurface absorption fields in place of stone aggregate. Untreated building paper or a geotextile (synthetic) fabric cover shall be used to cover the tire chips before backfilling. Chips are to be a nominal 2 inches in size and may range from one-half (2) to a maximum of 4 inches in any one dimension. Exposed wire may protrude no more than one-half (2) inch from the chip. Fines, defined as any material less than 2 mm in size, are prohibited in this application. Contact your local Health Department for details on this application. Standard forms have been developed for septic system contractors through DEQ.

3. TIRE DERIVED FUEL (TDF)

Specifications for TDF are established by the end user, the Acustomer≡, for the material. Waste-to-Energy systems can utilize whole tires or various sites of tire shred dependent on their Afuel≡ feed system. An end user who mixes the tire material with coal or wood chips historically has required a nominal 2 inch chip with little or no exposed wire. Virginia currently has three waste-to-energy facilities using waste tire material, and one coal burning facility using tire chips. Facilities burning TDF will require an incinerator permit from DEQ under Virginia Solid Waste Regulations. For more information on these applications, contact Paul Farrell, Permitting, DEQ (804-698-4000).

4. PRODUCT MANUFACTURE

Specifications for tire derived rubber vary according to the application or manufacturing profile. One-half inch nominal material, wire-free, can be used for paddocks, running tracks, etc. Three-eighths inch nominal material, wire free, can be used for playgrounds, and smaller pieces down to crumb rubber can be used for applications like asphalt rubber and sealants, and manufacture of such products as recycling bins, parking bumpers, and flooring blocks/mats. For information on manufacturers and distributors, contact Steve Coe, Waste Tire Management Program, DEQ (804) 698-4029.

For further information on the use of Virginia waste tire material, please contact Allan Lassiter, Steve Coe, or Mike Grose at (804) 698-4210 or by FAX at 698-4224.